

Lecture 8

Chemotherapy

By: **Saba Nazeih**



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Chemotherapy: Is the treatment of disease by chemicals, especially by killing **cancerous cells** or **microorganisms**. In popular usage, it refers to **antineoplastic drugs** used to treat cancer, but in non-oncological use, the term may also refer to **antibiotics**.

- **Purposes of chemotherapy using**

- 1. To try to cure cancer completely**
- 2. To help make other treatments more effective**
- 3. To relieve symptoms**
- 4. To reduce the risk of the cancer returning**



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• Routes of chemotherapy administrations

- as an injection into the **muscle**
- **intravenously** (directly to the bloodstream; also called IV)
- Injections Into an **artery**
- Injections under the **skin**
- **topically**
- Pills taken by **mouth**
- Injections into the fluid around the **spinal cord** or **brain**



- **Dose of chemotherapy**

Chemotherapy is most often given in **cycles**. These cycles may last one day, several days or a few weeks or more. There will usually be a **rest** period when no chemotherapy is given between each cycle. A rest period may last for days, weeks, or months. This allows the body and blood counts to **recover** before the next dose.



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- **Types of chemotherapy drugs**

1. Alkylating agents

- Such as carboplatin, cisplatin and oxaliplatin.

Alkylating agents are used to treat many different cancers, including leukemia, lymphoma, multiple myeloma, sarcoma, as well as cancers of the lung.



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2. Anti-metabolites

- These drugs are the most widely used; examples are Fluorauracil, Methotrexate and Fludarabine.
- They are commonly used to treat **leukemias, cancers of the breast, ovary, and the intestinal tract**, as well as other types of cancer.

3. Plant alkaloids and terpenoids

- These alkaloids are derived from plants; the main examples are vinca alkaloids and taxanes. Examples are Vincristine, Paclitaxel and Topotecan



5. Anti-tumor antibiotics

- They are widely used for a variety of cancers.
- Examples are Bleomycin, Doxorubicin, and Mitoxantrone.

• Side effects of chemotherapy

1. Depression of the immune system, which can result in more likely to have infections
2. Damage to the mucosal surfaces, stomatitis, mouth ulcer, vomiting, diarrhea



3. Sterility, abortion and mutagenesis
4. Bleed too much, even during everyday activities
5. Feel pain from damage to the nerves
6. Have a poor appetite or lose weight
7. Lose their hair, alopecia and delaying wound healing
8. Damage to specific organs (Cardiotoxicity, Hepatotoxicity, Nephrotoxicity and Ototoxicity)
9. Myelosuppression (decreased production of blood cells, hence also immunosuppression)



- **Eye cancer**

- Eye cancer refers to a cancerous growth in any part of the eye. There are several types of eye cancer like **intraocular** cancers, **ocular melanoma**, **retinoblastoma** and **ocular lymphoma**.

- **Treatment of eye cancer**

1. **Surgery**
2. **Laser treatment**
3. **Radiotherapy**
4. **Chemotherapy**

